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THE
ASIATIC OR BENGAL CHOLERA,

OF
1867 TO 1873.

Bind cover in front

BY

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THE ORIGIN AND SPREAD OF ASIATIC OR BENGAL CHOLERA.

By JOHN C. PETERS, M. D.,

Of New York.

HINDOSTAN, especially the Presidency of Bengal, or more particularly the valley and delta of the Ganges, may justly be regarded as the home or place of origin of epidemic cholera.

Hindustan has peculiarities of season, climate, winds, and productions ; and the Hindoos have anomalies of manners, customs, religious ceremonies, etc., which distinguish them from all other countries and peoples.

The marked feature of its seasons is that the southwest and northeast monsoons blow each for six months in the year, and regularly succeed each other. The southwest monsoon blows from the eastern coast of Africa and the Indian Ocean over the western or Malabar coast of India, from April until about the close of October, and across India to the northeast, towards China. The northeast monsoon begins about the end of October in fitful squalls until the end of November, when it regularly sets in and continues until the beginning of April, blowing against the eastern or Coromandel coast of India, athwart India towards Madagascar and the southeastern coast of Africa.

Hence the influence of these regular winds would be to drive cholera, if it existed in a malarious form in the air, towards China for six months during the year, and towards the southeastern coast of Africa during the remaining six months. The disease will scarcely ever be blown towards the northwest, which is the direction in which it most frequently advances. Trade, travel, and pilgrimages take the northwestern route, and serve to explain the advance of cholera in that direction.

In the neighborhood of Calcutta there are three hot and *dry* months, namely, March, April, and May, in which nearly 48,000 deaths from cholera have occurred in the course of ten years. Three hot and *wet* months, namely, July, August, and September, with only 11,000 deaths. Three cold and *dry* months, namely, November, December, and January, with 24,000 deaths. And three transition months, with 22,000 deaths.

Macpherson (see "Cholera in its Home," page 6) says : "It is clear that the three hot and *dry* months [while the wind is blowing towards China] produce fully four times as many deaths by cholera as the three hot and wet months, and about twice as many deaths as the cold and dry months ; while the cold and dry months slightly exceed the transition months in their number of casualties."

The temperature in the hot and dry months is only three degrees greater than in the hot and wet months, but the rain-fall is ten inches per month less. Hence very heavy falls of rain appear to diminish the prevalence of cholera, and the drying process increases the disease. This seems to corroborate some of Pettenkofer's views on a large scale. In the hot and dry months the Ganges only discharges 36,000 cubic feet of water in a second ; in the wet months, 500,000.

The customs of the Hindoos are very peculiar in some respects. It is calculated that 150,000,000 of them always defecate on the ground ; they have no privies or latrines, and even the native soldiers under British rule will not use them. A mutiny greater than that of 1857 might be produced if this necessary hygienic rule were rigidly enforced. Many thousands of tons of human excrement have thus been daily deposited upon the open ground for some thousands of years. Outside of the large cities of India the bulk of the people always dwell in villages of from 2,000 to 10,000 inhabitants, and from five to less than twenty miles apart. The result has been the accumulation of enormous amounts of fæcal matter, with a corresponding degree of saturation of the soil, and the consequent extensive pollution of water in every direction. The disinfection of India can only be a remote possibility, and Europe must make up its mind to be scourged by cholera from that prolific source for many years to come, unless she protect herself by quarantine and disinfection.

No human or animal compost is used in India for agricultural intents ; it is all left upon the open ground where it is dropped. On the other hand in China and Japan almost everything is used for purposes of manure, but in China it is carried in open vessels and vehicles to the fields ; whence dysentery and typhoid fever abound, while cholera never occurs unless it is imported from India. In Japan all filth is collected in closed vessels, and removed from all the towns and villages every night. Japan possesses the cleanest cities and the widest streets ; and cholera, dysentery, and typhoid fever are almost unknown.

In China and Japan there are systems for the removal of excrement, and in both all human excreta are applied to the land as manure. But the Japanese are incomparably the most active, shrewd, and cleanly. Their streets are kept free from filth, and the houses, yards, and lands are preserved from pollution by most thorough arrangements. An army of scavengers is employed during the nights in removing the debris and excreta of the day. There are no water-closets, privies, or dung heaps, but closed vessels are always used. They not only clear away the night soil, but the droppings of animals, offal, and kitchen refuse ; so that the poorest quarters of the cities are kept thoroughly clean. In neatness the Japanese are not surpassed by any people in the world, and *if cleanliness is next to godliness*, they deserve the palm. They all bathe every day, both masters and servants.

The Hindoos style their country "the land of the ceremonially pure," but it is really that of the detestably unclean ; and their habits are so inveterate that nothing but the most arbitrary measures can ever eradicate them.

As regards the spread of cholera among the villages in India, Dr. White,

of Assam, a devout believer in Cunningham and Bryden, is forced to admit (see "Sixth Annual Report of the Sanitary Commissioner with the Government of India," p. 8) that "the history of the outbreaks of cholera is the same in every case. A case of sporadic cholera occurs in a Hindoo village; the patient is placed in the *smallest and closest apartment* of the house; a *large fire is lighted*, and as many people, friends and relatives of the sufferer, as the room will hold, assemble and squat around him solely for the purpose of praying; as there is seldom, if ever, any attempt to administer remedies. The patient during this time is vomiting, defecating, etc., and *the fomites of the disease must necessarily be carried off* by the visitors to the crowded rooms and huts. After three or four days, five or six new cases occur, and so on daily, until it runs through the whole village or villages to which the persons first infected belonged. Its further progress is limited, or circumscribed by the rude system of quarantine maintained by the natives. As soon as it is known that any considerable number of fatal cases have occurred in any particular village, all the other places in the neighborhood cut off every intercourse with it. Although they may have very dear relatives living in it, they will not go near, nor allow any person from the infected village to enter their own; and so rigidly is this precaution enforced, that many instances are known in which persons approaching a healthy abode from one where cholera existed, have been violently assaulted."

Thus it will be seen that heat, filth, carelessness, and overcrowding are capable of making a non-contagious disease at least infectious. For Macpherson says (p. 20): "While admitting that it is impossible to resist the evidence that cholera is contagious at certain times, I must still assert that it is pestilent in a very slight degree in the better houses and general hospitals of Bengal." Again, ordinary dysentery is not contagious; but Professor McLean (see Reynold's "System of Medicine," p. 627) asserts: "Dysentery once established as an epidemic, is propagated by the effluvia from the evacuations of those affected in crowded hospitals. In most of the Hindostan barracks the latrines were so badly constructed, so injudiciously placed and so illy kept, as to aid materially in propagating both dysentery and cholera; by exposing the healthy to the effluvia arising from the evacuations of the diseased. He has seen these diseases propagated in hospitals by the practice of preserving the evacuations of large numbers of patients for inspection by medical officers at their morning and evening visits. No single measure of a preventive kind yet tried has exercised a more beneficial effect on the health of troops in India than the improvement which has been introduced in the position, construction, and care of barracks and hospital latrines."¹

The filthy habits of the Hindoos have carried cholera to the "Hill Sanitaria" of Hindostan. Dr. McNamara (see "Treatise on Cholera," p. 262) says: "Simla is the most beautiful hill sanitarium in the world. It is placed

¹ According to Inspector General John Murray (see observations on the *Pathology and Treatment of Cholera*, 1874, p. 56); "Out of two hundred and ninety-one cases treated in the civil hospitals in Paris, from September 16 to November 10, 1873, one hundred and one, equal to thirty-five per cent., originated in the hospitals in patients under treatment for other diseases." There was probably less ventilation than in warmer weather.

7,000 feet up the Himalaya Mountains, north of Hurdwar. Scarcely a year now passes without deaths from cholera occurring at Simla, and in 1866-67 and 1868 it appeared in a deadly form. Nor can we wonder at this when as late as 1865 the sanitary commissioners inform us that the "sides of the hills were everywhere studded with human excrements, and the smells which arose in every direction were a disgrace to a place which professes to be an asylum for the sick. The water was contaminated. In summer the dry beds of the mountain torrents are places of convenience and filth. The edge of a hill at a few yards' distance from the public road was lined with filth, and evidently the resort of the numerous native servants of the locality; and at some distance lower down the slope, is the spring from which the water supply of the summer residence of Her Majesty's Viceroy and many of the largest and best English houses in the vicinity is drawn. What must occur after every fall of rain is too obvious. Dr. Murray has made an elaborate series of analyses of the waters of Simla, which are naturally the purest he has found in India; but as it reaches the consumer, it is the most impure he has ever analyzed. The amount of nitrates in it is something appalling."

In no other country in the world are the pilgrimages so vast and numerous; and if cholera be portable at all, it must be carried about by the thousands and millions of pilgrims who annually traverse Hindostan in every direction.

These pilgrimages take place from Juggernaut to Calcutta, and along the whole course of the Ganges, which runs from the southeast to the northwest, through Patna, Benares, and Allahabad, up to Hurdwar, at the source of the Ganges, in the Himalaya Mountains. At Hurdwar, upwards of one half million pilgrims assemble on the 12th of April each year, and at least three millions every twelfth year. Lieutenant Bacon says: "On the road before us and behind, as far as the eye could reach, was a continued flood of human beings, rolling on toward the Ganges. Every avenue was crammed; every inch of ground was occupied. The uproar and effluvia were intolerable, and the disgusting spectacles which are only too frequently exhibited, were almost sufficient to deter any one from revisiting such a scene."

According to Lieutenant-colonel Sir Alexander Burnes (see "Narrative of a Journey to and Residence in Cabul in 1836, '37 and '38," p. 77), the most extensive arrangements have long been made to convey pilgrims, merchandise, and disease to and from Hurdwar and Central Asia. "The Lohanee Afghans are a migratory, commercial, and pastoral people, who proceed annually into India to purchase merchandise. At the end of October, as winter approaches, they descend into India, remain until after the Fair at Hurdwar, and commence their return towards the end of April. They all reach Cabool and Kandahar by the middle of June, in sufficient time to dispatch their investments to Herat and Bokhara; and then pass on into Khorassan in Persia, where they remain during the summer. They march in three great divisions; the first has twenty-four thousand camels, the second nineteen thousand, and the third seven thousand. It is with these that the Hindoo merchants, and foreigners generally travel. This channel of trade is very ancient, dating before the time of the Emperor Baber, in A. D. 1505."

The arrangements for the conveyance of pilgrims, merchandise, and disease farther west, are still more complete, according to Sir James Conolly. Due west of Herat, lies Meschid, the *Holy City* of North Persia. For eight months in the year all the roads to and from Meschid are thronged with pilgrims. Nearly sixty thousand come up from India, Cabool, and Afghanistan, and as many more from Turkey in Asia, the Caucasus, and shores of the Black and Caspian seas.

The great Hurdwar epidemic of 1867 is well known; over forty-three thousand deaths occurred then in the Punjaub from cholera. MacNamara (see "Treatise on Cholera," p. 251, 1869) says: "The epidemic crossed the western frontier of India into Afghanistan with fearful virulence in July, 1867, and continued until the month of September. It appeared in Teheran towards the close of 1867, where it was also reproduced in 1868." At that early period, MacNamara said: "Europe, therefore, is threatened with the disease, via Russia and Turkey."

Henry Blanc, Surgeon Major of the Indian Army, says (see "Cholera; How to Avoid and Treat it," p. 10): "From Peshawur (northwest border town of India), the disease crossed over into Cashmere and Afghanistan, where it broke out with violence in July, 1867, and did not cease until September. Towards the end of 1867 it reached Persia, where it remained until the autumn of 1868."

It is also well known that there was another great outbreak of cholera in the Punjaub or Northwest Province of India in 1869; over ten thousand deaths occurred from cholera (see "Sixth Annual Report of the Sanitary Commissioner with India," p. 33): "It prevailed in July, August, September, and October, 1869. Drs. Cunningham and Bryden have most carelessly assumed that the disease of 1867 was blown only over the borders of India in 1869, and by a monsoon, which does not blow in that direction at this season.

Dr. Bryden says:¹ "The cholera of 1869 did not stop on the Peshawur tier in the first week in September. We hear of it above the Kyber pass at Jellabad, and before the middle of September its appearance in Cabul was reported. On the 21st of September, 1869, it had again been so long in Meschid that from fifty to sixty cases a day were occurring. And far beyond, from the shores of the Caspian Sea, the arrival of cholera at Astrabad was announced. The English political agent at Astrabad writes, 'It first broke out among the soldiery and irregular cavalry. These being dispersed it spread in the town, and was very virulent. Those who can afford it have left the country.'"

The Caspian Sea is now covered with Russian steamboats, which can convey the disease rapidly in various directions. The cholera which was in Teheran, the capital of Persia, in 1867, would almost certainly reach Russia in 1868. Bryden says: "This cholera finds its termination neither at Astrabad, nor Meschid. Cases of cholera occurred at Kiev, the holy city of Russia, early in July, 1869, but there was no epidemic until the middle of September. At first it was supposed that the cholera had reached Kiev, from Persia, but it appears this year (1869) Tiflis has been unusually

¹ See "Statistical Report of Cholera in India in 1869," p. 220.

healthy." But the Teheran cholera of 1867 and 1868 probably reached Tiflis in 1868, in time to be forwarded to Russia in 1868 ; and doubtless Drs. Tholozan and Pelikan have entirely overlooked the cholera of 1867 in Persia, and merely deny its existence in Tiflis in 1868.

However this may be, the epidemic of 1865 and 1866 in Russia left that country with 33,382 cases in 1867. In 1868 there were about eighty-three attacks in all Russia ; and in 1869 only nine hundred and eleven cases, and the majority of these were in the holy city of Kiev on the river Dnieper ; to which at least 50,000 pilgrims come yearly, some of them on their return from Jerusalem, and the holy places in Syria and the Caucasus.

It is not only highly probable, but almost certain that the Hurdwar epidemic of 1867 reached Russia by way of Persia, in 1868 and 1869, so that in 1870 there were 20,140 cases reported. The Punjaub epidemic of 1869 was soon added thereto, and in 1871 there were no less than 305,229 deaths from cholera in Russia. At least Dr. Flauvel, one of the most competent of the French historians of the course of cholera, says that in 1869 and 1870, Poti, on the eastern coast of the Black Sea, Kertch in the Crimea, Taganrog on the sea of Azof (the first southern Russian port that is cleared of ice in the spring), and Rostoff on the river Don, were among the earliest Russian cities to be visited by cholera. He says : " As usual the rapid propagation of the disease along the coast of the Black Sea, coincided with the arrival by steamships of travellers from infected points. No less than seventy infected vessels arrived in the Bosphorus, and Constantinople was soon attacked."

The river Dnieper upon which the holy city of Kiev is situated, is connected by canals with the rivers Niemen and Vistula, and in this way cholera was brought through Poland up to the Baltic cities of Königsberg, Dantzic, and Stettin, by Polish raftsmen in 1870. There were many attacks in Poland in 1870, 1871, and 1872 ; and in 1873, there were 37,586 cases and 16,248 deaths. It prevailed in Königsberg, Dantzic, and Stettin, in 1871, 1872, and 1873. In 1871 there were over 3,000 cases and 1,800 deaths in these Baltic towns ; more in 1872 ; and 8,669 cases and 5,057 deaths in 1873. In Galicia two hundred and twenty-four towns and villages were attacked.

There was a slight epidemic in Hamburg in 1872 ; and 1,225 cases and 877 deaths in 1873.

There were 140,000 deaths from cholera in Hungary in 1872 and 1873 ; and many in Austria, Poland, Bavaria, and Italy. There were nearly 27,000 deaths in Prussia in 1872 and 1873, of which 788 occurred in Breslau, 2,587 cases in Dantzic, 5,277 cases in Königsberg, 7,120 cases in Magdeburg, and many others in Warsaw, Berlin, and Dresden.

It was almost a matter of course that cholera would be exported from Europe in 1873 ; it is even positively proven that it was conveyed from Genoa in Italy by two steamships down to Rio Janeiro and Buenos Ayres.

Many of the first cases which occurred in New Orleans have been traced to persons who worked among the shipping on the levee, although they died in various distant parts of the city. The importation into Nashville has been positively proven as having occurred from Memphis ; and the arrival of the disease in Memphis from New Orleans is scarcely more doubtful than that of yellow fever, which is regarded as absolutely certain. In Cincinnati, cases

had occurred and had been exported to Wheeling, West Va., before any had been reported in the former city. Cases were sent direct from New Orleans and Memphis up to Chicago as early as May, 1873.

Great mistakes and confusion have arisen in New Orleans, Memphis, Nashville, Cincinnati, and other places, because careful examinations into the origin of the disease were not instituted until weeks and months after cholera had commenced or even terminated in those cities; and then the fatal cases only were more or less accurately recorded. It would be quite as impossible to trace the course of scarlet fever, if none but fatal cases were counted. Thus in France, in 1866, only ninety-five thousand cases proved fatal out of two hundred and thirty thousand; hence according to the New Orleans and Cincinnati plan one hundred and thirty-five thousand facts would have been suppressed or overlooked. When all the non-fatal cases are omitted it frequently happens that there is no apparent, or easily traceable connection between the fatal ones; and it seems like going back to the *dark ages* of medical research to parade lists of fatal cases only of cholera, and to refer to them as containing all, or even the principal part of the facts descriptive of an epidemic.

The marked resemblance between the progress of the great epidemic of 1841 to 1849, with that of 1867 to 1873, has impressed many. The huge twelfth year Juggernaut epidemic of 1841, in India, was supplemented by an equally great Hurdwar outbreak in 1843. According to Professor Dickson,¹ in 1844 it was known to have made an encroachment upon Afghanistan, where its ravages were considerable. In May, 1845, it was at Kandahar, carrying off three hundred victims a day. In June, at Cabul; in July, at Herat. Some pilgrims going to Meschid, carried it to that city in February, 1846. From Meschid it traversed Persia from east to west, following the great roads; reaching Astrabad in May, 1846, and Teheran in June, 1846; carrying off seven thousand persons in seventy days. It is significant that in 1846 and in 1831, cholera appeared at the precise time when the pilgrims were flocking in from all sides. At the same time following the west coast of the Caspian Sea, in November, 1846, it invaded the Russian provinces, attacking the same towns as in 1823 and 1831. Here it stopped at the end of the year 1846, and took up its winter quarters upon the frontiers of Europe. For several months nothing was heard from it; there were indeed some moments of hope that it had disappeared entirely. But this illusion did not last. At the end of March, 1847, it started from its short sleep and reappeared on the shores of the Caspian; in May, 1847, it was among the Kossacks; in July at Astracan; on July 21, at Taganrog on the sea of Azof; at Kherson at the mouth of the Dnieper; then at Kiev; and from there down to the Baltic. It arrived at Hamburg in August and September, 1848; and at New Orleans by three ships from Hamburg and Bremen, in December, 1848.

In the "Bavarian Official Report," p. 14, it is stated that in two hundred and fourteen towns and villages importation of the disease could be proved, and that in eighty-one it was not. It is highly probable that intelligent and industrious investigators will find importation in all instances.

¹ See *New York Journal of Medicine*, January, 1849, p. 9.

